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Air flow control device ready for flight test

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WRIGHT-PATTERSON AIR FORCE BASE, Ohio — The Air Force Research Laboratory's Air Vehicles Directorate's air flow control device has completed final preparations for its May 2004 flight test on a Royal Australian Air Force (RAAF) F-111.

Members of the RAAF visited Eglin Air Force Base, Fla., and tested High Frequency Acoustic Suppression Technology (HiFAST) to ensure it would fit the RAAF F-111 configuration. Following some minor design changes, HiFast was transferred to Australia.

HiFAST is a spoiler located within an aircraft weapons bay that can be extended into the air stream from a retracted position. It contains nozzles that inject the air stream with pulses of high pressure air, which counter instability generated by opening a weapons bay door. Without HiFAST, opening weapons bay doors during flight creates a shear boundary layer or an area where airflow transitions sharply from the high speed air flow outside the weapons bay to slower speed air flow within the bay. The result is instability; pockets of circular rotating air, called vortices, hitting the weapons bay walls and generating an acoustic wave. This wave flows back up the air stream causing acoustic resonance, producing strong vibrations that may damage the aircraft and its systems. @